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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Daniel J. Dove

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EXAMINER

RAHMAN, FAHMIDA

ART UNIT

PAPER NUMBER

2116

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,665	DOVE, DANIEL J.	
	Examiner	Art Unit	
	Fahmida Rahman	2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4,9-13 and 30 is/are allowed.
- 6) ☒ Claim(s) 14-22 and 24-29 is/are rejected.
- 7) ☒ Claim(s) 2-3,5-7 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This final action is in response to communications filed on 7/31/2006.
2. Claims 1, 9, 11-17, 20 have been amended, claim 8 has been cancelled, no new claims have been added. Thus, claims 1-7, 9-30 are pending.

Claim Objections

Claims 5 and 7 are objected to because of the following informalities: claims 5 and 7 both recite "each of the programmable current sense and control units" in lines 4-5 (i.e., more than one). The respective parent claims 4 and 6 recite "a programmable current sense and control unit" in line 2 (i.e., only one). Therefore, it is not clear whether one or more programmable current sense and control unit is intended. For the rest of the action, it is assumed that one programmable current sense and control unit was intended in claims 5 and 7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3, 5, 6, 7, 22-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 2 and 5 recite the limitation "the network switches" in lines 2 and 3 respectively.

There is insufficient antecedent basis for this limitation in the claims.

Claim 3 depends on claim 2 and carries the same ambiguity.

Claim 6 recites "network switch" in line 3 and claim 7 recites "network switch" in lines 2 and 5. There is insufficient antecedent basis for this limitation in the claims.

Claim 22 recites the limitations "an internal power supply" and "an external power supply" in line 3. It is not clear whether they are intended to be same or different from "an internal power supply" recited in line 11 of claim 20 and "an external power supply" recited in line 13 of claim 20 respectively. It is necessary to establish the relationships among recitations.

Claim 23 depends on claim 22. Thus, it carries the same ambiguity of claim 22.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 14-16, 17, 20-21, 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehr et al (US Patent Application Publication 2004/0049321), in view of Weiler et al (US Patent 5936318).

For claim 14, Lehr et al teach the following limitations:

A method of power distribution of DC power ([0055]) over twisted pair cabling ([0020]) to network devices (Fig 2A), the method comprising:

- determining amounts of power for the network devices ([0061]) connected via said twisted pair cabling ([0020]) to each Ethernet switch (90, [0040]) of a plurality of Ethernet switches (Fig 2A)
- summing together the amounts at each Ethernet switch ([0061] mentions that total needed energy is calculated)
- communicating a power request to an external supply (192 shows the external supply can be from other power/data combiner unit. [0074]-[0076] mention that 164 communicates control information to power data combiners and serves to configure the power path across the network from source to sink. Therefore, 164 places power requests to the upstream power/data combiners to configure power path to downstream power/data combiners).

Although Lehr et al do not explicitly mention that the additional amount of power required beyond a capability of an internal supply of each Ethernet switch is determined, the characteristics of the system of Lehr et al should determine the additional amount required beyond internal supply 184 of Ethernet switch. According to [0075] expected

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power consumption is indicated during normal network operation and according to [0076] the control information to power/data components is communicated to build the power network from source to sink, where the allocation of power is analogous to data traffic management. In such a case, when the expected power consumption in the network changes (i.e., when load increases), the management unit indicates the necessary additional power required beyond 184 and provides provisioning of power to configure power path from source to sink.

Lehr et al do not mention the following limitations:

- summing the amounts at each priority level
- determining priority levels of power required

Weiler teach the following limitations:

A method of power distribution (abstract) to network devices (14-18 in Fig 2), the method comprising:

- determining amounts (35 stores the configuration of allocation of power consuming devices; lines 28-31 of column 4) and priority levels of power (34 stores the priority associated with devices, which can be considered the priority levels of power for the respective devices) for the network devices connected to each power distributor (combination of a strand and 42 can be considered a power distributor) of a plurality of power distributors (Fig 1);
- summing together the amounts at each priority level at each power distributor (Fig 2 shows that 43 measures the load to determine the overload condition. That

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- requires summing up the amount required by each device at each priority level at each strand or power distributor);
- and determining additional amounts and priority levels of power required beyond an internal power supply capability of each power distributor (Lines 14-20 of column 6 mention that if the load exceeds the limit, it is connected to different strand. Therefore, determination of additional power required beyond the capability of each strand or power distributor is performed, so that the respective device can be connected to the proper strand. In addition, lines 10-12 of column 2 mention that the critical power consuming devices are reallocated. Each high priority device can be considered associated with high priority level of power. The system determines the high priority devices requiring high priority power that need to be reallocated to different strand or power distributor).

Therefore, it would have been obvious for one ordinary skill in the art at the time the invention was made to combine the teachings of Lehr et al and Weiler et al. One ordinary skill in the art would be motivated to incorporate the teachings of Weiler et al into Lehr et al, since high priority device need to be identified and provisioned with power.

For claims 15 and 16, [0074]-[0076] of Lehr describes the operation of power management unit, which requires allocation of power depending on power request through a serial data connection.

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For claim 17, neither Lehr nor Weiler et al teach that the power requests are determined by arbitration between switches.

Examiner takes an official notice that arbitration between requests from different devices is well known in the art. One ordinary skill in the art would have been motivated to have the arbitration, so that the system guarantees all of the switches to be allocated with power in their respective slot of arbitration.

For claim 20, Lehr et al teach the following limitations:

A method of power distribution of DC power ([0055]) over twisted pair cabling ([0020]) to network devices (Fig 2A), the method comprising:

- associating an amount of power for each device connected to a port of a network switch ([0066])
- summing together the amounts of power for the devices at Ethernet switch ([0061] mentions that total needed energy is calculated)
- communicating a power request to an external supply (192 shows the external supply can be from other power/data combiner unit. [0074]-[0076] mention that 164 communicates control information to power data combiners and serves to configure the power path across the network from source to sink. Therefore, 164 places power requests to the upstream power/data combiners to configure power path to downstream power/data combiners).

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Although Lehr et al do not explicitly mention that the additional amount of power required beyond a capability of an internal supply of each Ethernet switch is determined, the characteristics of the system of Lehr et al should determine the additional amount required beyond internal supply 184 of Ethernet switch. According to [0075] expected power consumption is indicated during normal network operation and according to [0076] the control information to power/data components is communicated to build the power network from source to sink, where the allocation of power is analogous to data traffic management. In such a case, when the expected power consumption in the network changes (i.e., when load increases), the management unit indicates the necessary additional power required beyond 184 and provides provisioning of power to configure power path from source to sink.

Lehr et al do not mention the following limitations:

- associating priority level of power for each device
- determining priority levels of power required
- maintaining in switch a table of amount and priority level for each switch port
- using the table to allocate available power to high priority devices when insufficient power is available to fully power all of the connected devices.

Weiler et al teach the following limitations:

A method of distributing power (abstract) to network devices (14-18 in Fig 2), the method comprising:

- associating an amount (35 stores the configuration of allocation of power consuming devices; lines 28-31 of column 4) and priority level of power for each

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device (34 stores the priority associated with devices, which can be considered the priority level of power for the respective device) connected to a port (14') of a network switch (11);

- maintaining in the switch a table of the amount and priority level for each switch port (34 and 35 can be within 11 as mentioned in lines 56-60 of column 6);
- and using the table to allocate available power to higher priority devices when insufficient power is available to fully power all of the connected devices (lines 38-50 of column 6).

Therefore, it would have been obvious for one ordinary skill in the art at the time the invention was made to combine the teachings of Lehr et al and Weiler et al. One ordinary skill in the art would be motivated to incorporate the teachings of Weiler et al into Lehr et al, since high priority device need to be identified and provisioned with power.

For claims 21 and 24, 43 in Fig 2 of Weiler senses actual power drawn by the devices.

For claim 25, the overloaded load is disconnected from switch 42 as mentioned in lines 14-20 of column 6 of Weiler.

For claim 26, priority is associated with the device in Weiler. Thus, priority level of power depends on type of device used.

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For claims 27 and 28, neither Lehr nor Weiler et al teach the type of high priority device. One ordinary skill in the art would have been motivated to have IP-enabled telephone device or wireless access point so that communication devices are always active in the system, which is desirable in airline system.

For claim 29, note lines 22-32 of column 5 of Weiler mentions about manual configuration by the operator.

4. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehr, in view of Weiler et al (US Patent 5936318), further in view of AAPA.

For claims 18 and 19, neither Lehr nor Weiler teaches the type of arbitration. AAPA teaches that master-slave and peer-to-peer are well known in the art ([0050] of page 4).

It would have been obvious for one ordinary skill in the art at the time the invention was made to have master/slave arbitration or peer-to-peer arbitration depending on the applicability of the situation, since master/slave arbitration works well for a simplified system and peer-to-peer arbitration works well where master/slave arbitration is not feasible.

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5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lehr, in view of Weiler et al (US Patent 5936318), further in view of Toyomura (US Patent 4486759).

For claim 22, power switch 42 of can be considered a multiplexer, since it selects the appropriate strand based on signal from 41. However, 42 does not select between an internal power supply and external power supply.

The system of Toyomura teaches a power multiplexer that selects between external and internal supplies. It would have been obvious for one ordinary skill in the art to combine the teachings of AAPA, Weiler et al and Toyomura. The system of AAPA modified by Weiler et al need a power multiplexer to select between external and internal supply so that the power distributor can supply power to devices in case of complete failure of external supply.

Allowable Subject Matter

Claims 1, 4, 9-13, 30 are allowed.

Claims 2-3, 5, 6, 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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Claim 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 14-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fahmida Rahman whose telephone number is 571-272-8159. The examiner can normally be reached on Monday through Friday 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on 571-272-3670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fahmida Rahman
Examiner
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